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SAP Aktiengesellschaft
Patentabteilung,
Neurottstrasse 16
69190 Walldorf
DE

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unter Zugrundelegung von
on the basis of the following
sur la base suivante

Verwaltungsgebühr/Administration fee/Taxe d'administration ☒

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Der Präsident des Europäischen Patentamts;
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For the President of the European Patent Office

Le Président de l'Office européen des brevets
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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Bezeichnung der Erfindung:
Title of the invention:
Titre de l'invention:
Method and software application for verifying and accounting electronic documents

In Anspruch genommene Priorität(en) / Priority(ies) claimed / Priorité(s) revendiquée(s)

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Method and Software Application for Verifying and Accounting electronic Documents

Background of the Invention

Field of the Invention.

The technical field of this invention is in the area of electronic document processing. More particularly, the invention relates to methods, computer program products and systems for automated billing systems and, still more particularly, for processing, generating and presenting an electronic invoice to a customer for remote review and accounting.

Description of the Related Art

It should be understood that the term "presentment" as used herein does not include the specialized definition normally associated with commercial paper, i.e. the production on a negotiable instrument to a drawee. Rather, the term refers to providing via electronic means an "invoice" containing at least the same customer billing data typically included on a paper invoice. This electronic presentment may take place through the use of an internet website, a bank ATM machine or through the use of a stand alone kiosk.

The presenting party is hereinafter alternatively referred to as the first party and the person or combining to whom the invoice is presented (usually the customer), is hereinafter alternatively referred to as the second party.

Methods and systems for electronic invoice presentment and payment (EBPP) in enterprise accounting software (EAS) environments are known from the state of the art. The document U.S. Pat. No. 6,044,362 discloses a system for automated electronic invoicing and payment for providing remote customer review of automated billing from an invoicer. The system includes invoice presentment electronics having a control system and first communication electronics. The system also includes at least one remote authorization terminal having a customer interface, the terminal having second communication electronics adapted to operatively communicate with the first communication electronics. The control system of the invoice presentment electronics is adapted to provide billing data, regarding a customer invoice preauthorized for automated billing, to the first communication electronics for transmission to the second communication electronics. The customer interface of the remote authorization terminal is adapted to present the billing data to a customer and to receive a response relating to the billing data from the customer, the response indicating one of acceptance of the billing data for automated billing or modification of the billing data for modifying automated billing. Acceptance can either be an active response from the customer or a passive response, for example, automatic acceptance up to a preset limit.

U.S. Pat. No. 5,465,206 discloses an invoice pay system wherein participating customers pay bills to participating billers through a payment network operating according to preset rules. The participating customers receive bills from participating billers of (paper/mail bills, e-mail notices, implied bills for automatic debts) which indicate an amount, and a unique biller identification number. To authorize a remittance, that customer transmits to its bank (a participating bank) an invoice pay

order indicating a payment date, a payment amount, that customer's account number with the biller, a source of fund and the biller's biller identification number, either directly or by reference to static data, containing those data elements. Bank C then submits a payment message to a payment network, and the payment network, which assigns the biller reference numbers, forwards the payment message to the biller's bank. For settlement, the customer's bank debits the customer's account and is obligated to a net position with the payment network; likewise, the biller's bank receives a net position from the payment network and credits the biller's bank account. If the customer's bank agrees to send non-reversible payment messages, that customer's bank does not submit the transaction until funds are good unless the customer's bank is willing to take the risk of loss if funds are not good, in the case of a guaranteed payment network. The biller's bank, upon receipt of the payment message, releases the funds to the biller, and provides A/R data to biller in a form which biller B has indicated, the form being one which does not have to be treated as an exception item to the biller. The biller's bank is assured of payment by the payment network, unless the transaction is a reversible transaction according to the preset rules of the payment network. In specific embodiments, the customer initiates the invoice pay orders manually, via paper at an ATM, via PC, or via telephone keypad.

An other system is known from the website www://ofx.net. Open Financial Exchange (ofx) is a broad-based framework for exchanging financial data and instructions between customers and their financial institutions. It allows institutions to connect directly to their customers without requiring an intermediary. Open Financial Exchange is an open specification that anyone can implement: any financial institution, transaction processor, software developer, or other party. It

uses widely accepted open standards for data formatting (such as XML), connectivity (such as TCP/IP and HTTP), and security (such as SSL). Open Financial Exchange defines the request and response messages used by each financial service as well as the common framework and infrastructure to support the communication of those messages. The data of biller and customer are held in the same system.

Such computer systems and software may be used at various points of the whole process of presenting, accounting, verifying and paying a bill. Some of the available software is specialised to provide a direct interface between the computer systems of the presenting party and the customer. By means of such software, and electronic invoice may be presented to a customer by means of the Internet. To use such service, a customer only needs an Internet account, an Internet browser and access to a EBPP software. The available software further provides functions like sending questions to the biller with respect to a specific bill, paying a bill, downloading an invoice either as a data file for separate storage or as data for a direct entering into an EAS system of the customer. It to the electronic invoice has arrived in the computer system of the customer, an approval process is initiated, which does not distinguish between the conventional approval process without EBPP. The customer processes the following traditional steps: in the logistics department, the invoice is checked against the delivery, in the accounts department, accounts and costs centres are assigned to the bill, etc. these steps are performed manually and paper based. As soon as the necessary data are entered, the invoice may be booked. The booking may be performed manually in the booking system or automatically if a suitable EAS system is available.

However, suitable EAS systems require a lot of energy, money, hardware, software, consulting and training of the users. Smaller companies are now in the dilemma that they have to run through the process of approving invoices on the one hand and on the other hand that the size of the company does not to allow the installation of a complex EAS system. A further disadvantage of the installation of a complex EAS system is that the customer is bound to the system for a considerable amount of time. Consequently, the functionality of the installed EAS system is relatively fixed during that time. The scale of the software licence for the EAS system has to be fixed too, so that the customer is nearly inevitably bound to a system, which is designed for a huge workload, because software licences normally cannot be returned in times of lower workload. Further, the installation of additional functionality into an existing EAS is technically difficult and, if possible at all, cost intensive.

Thus, there is a need for a method, software application and/or data processing system providing a more efficient solution of the problems described above, particularly it is desirable to provide a software application, which is suitable for the use of approving, accounting or reviewing bills.

Summary of the Invention

In accordance with the invention, as embodied and broadly described herein, methods and systems consistent with the principles of the invention provide a method for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by a first party to a second party, comprising the steps of:

said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

An other aspect of the invention, is to provide a computer system for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by a first party to a second party, comprising:

- memory having program instructions;
- input means for receiving and entering data;
- output means for sending and presenting data
- storage means for storing data;
- a processor responsive to the program instructions to:

said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

The invention is further directed to a computer system, a computer program, a computer readable medium and a carrier signal, each comprising program code or instructions for processing bills according to the inventive method and in its embodiments.

Additional objects and advantages of the invention will be set forth in part in the description, or may be learned by practice of the invention. The objects and advantages of the invention will be realized and attained by means of the elements and combinations particularly pointed out in the appended claims. Embodiments of the invention are disclosed in the detailed description section and in the dependent claims.

It is understood that both the foregoing general description and the following detailed description are exemplary and

explanatory only and are not restrictive of the invention, as claimed.

Brief Description of the Drawings

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, explain the principles of the invention. In the drawings,

Fig. 1a and 1b are schematic block diagrams of the implementation of the inventive method within a computer system,

Fig. 2 is an exemplary flow diagram of an inventive process of processing an electronic bill,

Fig. 3 is a further exemplary flow diagram of an inventive process of processing an electronic bill,

Fig. 4 is an exemplary flow diagram of a workflow with manual selection of further case workers,

Fig. 5 is an exemplary flow diagram of a workflow manual and automatic selection of further case workers.

Detailed Description

Computer and program are closely related. As used hereinafter, phrases, such as "the computer provides" and "the program provides or performs specific actions", are convenient abbreviation to express actions by a computer that is

controlled by a program or to express that the program or program module is designed to enable the computer to perform the specific action.

Reference will now be made in detail to the principles of the invention by explaining the invention on the basis of a data processing process, examples of which are illustrated in the accompanying drawings. Examples, mentioned therein, are intended to explain the invention and not to limit the invention in any kind.

Within the concept of this invention, the terms used shall have their usual meaning in the context of the field of data processing unless defined otherwise. Particularly, a computer system can be a stand alone computer such as a PC or a laptop or a series of computers connected as a network, e.g. a network within a company, or a series of computers connected via the internet, including any usual peripheral devices, respectively.

The inventive method as described in the summary section may be implemented by means of a computer system and a computer software which allows the creation of business software applications and which allows the use of data bases or database applications and Internet applications.

An electronic invoice within the concept of this invention comprises a plurality of data fields, which each contain typical billing information like invoice number, the receiver of the invoice (the customer), its address, type of sold product, number of sold products, price per product, total price, taxes, payment conditions etc., each data field may be named accordingly. Such an electronic invoice may be implemented within the software environment mentioned above as a line of a table or one or more lines of one or more tables,

for example by means of a relational data base system. Such an electronic invoice, however, may also be implemented in object orientated programming languages as an instance of a class. The means for enabeling said second party (customer) to add one or more further data fields to the invoice may be implemented for example as computer programs or program modules or functions in programs (hereinafter collectively referred to as "program" or as "eCSP" (external customer service provider)), which are located in the computer system and software environment of the first party, but which may be called by a user of a computer system of the second party via the Internet by means of an Internet browser. These programs - if executed - present to the user of the second party one or more data fields, which the user may select and/or in which he may enter the information he desires. These information may be financial information, the second party needs for booking the invoice in his bookkeeping system. Such information typicall, but not limiting, comprise information for the general ledger, ? Nebenbücher ?, information on accounts, creditors, investments, etc. The Internet browser of the second party then forwards the information to the program of the first party and the program adds the respective data fields to the invoice and writes the respective information into these fields. The number and the properties of the further data fields so presented to the second party are defined during of the installation of the eCSP.

A invoice usually comprises a header section, in which the general information is contained, and a positions section, in which the information relating to the sold product is contained. Each of the further data fields, which are added to the electronic bill, may be assigned either to the header or to the positions section.

The first party and the second party can also be located within one company. The computer systems of the first and second party within one company may be connected via an intranet of the company. In a special case they may be identical.

A first embodiment of the inventive method is characterized in that the method further comprises a step of said first party providing means for enabeling said second party to enter information into the one or more further data fields.

A second embodiment of the inventive method is characterized in that the method further comprises said first party providing proposals for the information to the second party according to a predefinable list.

A third embodiment comprises the document is a bill.

A fourth embodiment comprises said first party writing financial information into the one or more further data fields and adding the one or more further data fields to the electronic bill.

A fifth embodiment is characterized by selecting the financial information from the group consisting of financial objects, accounting objects, bookkeeping objects.

A sixth embodiment is characterized by writing a predefinable value into one or more of the further data fields.

In a seventh embodiment the invention comprises the means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document comprise one or more structured documents.

An eighth embodiment comprises the strucured document comprises data and/or tags and/or program code and whererin the structured document is accessible by the second party.

A further embodiment is characterized by the or each strucutred document is a structured table or an XML-file or a HTML-file or a java server page.

A further embodiment is characterized by said first party providing means for enabeling the second party to characterize the invoice as accepted or refused.

In a further embodiment of the inventive method, sending an accepted electronic invoice to the second party and/or to a payment service provider.

A still further embodiment is characterized in that creating an accounts record from an accepted invoice and sending it to the second party.

A still further embodiment is characterized by two or more of the further data fields being structured hierarchical.

A still further embodiment is characterized by a property selected from the group consisting of displayable, non displayable, optionally editable, mandatory editable, is assigned to one or more of the further data fields.

A still further embodiment is characterized by said first party providing means for naming the one or more further data fields.

A still further embodiment of the inventive method is characterized in that checking the authorization of a user of the second party.

In a still further embodiment making the invoice accessible to the second party by means of an intranet or the internet.

In a still further embodiment counting the processed bills providing an invoice for the processing of the bills to the second party.

A still further embodiment is characterized by if an electronic invoice is received from a third party, automatically starting a workflow for processing the bill.

A still further embodiment is characterized by sending an electronic notice, which includes a link to the invoice to an address contained in the workflow.

A still further embodiment comprises the workflow runnning according to a predefinable sequence.

A still further embodiment comprises automatically checking the authorization of a participent of the workflow.

Processors suitable for the execution of a computer program include, by way of example, both general and special purpose microprocessors, and any one or more processors of any kind of digital computer. Generally, a processor will receive instructions and data from a read-only memory or a random access memory or both. The essential elements of a computer are a processor for executing instructions and one or more memory

devices for storing instructions and data. Generally, a computer will also include, or be operatively coupled to receive data from or transfer data to, or both, one or more mass storage devices (storage means) for storing data, e.g., magnetic, magneto-optical disks, or optical disks. Information carriers suitable for embodying computer program instructions and data include all forms of non-volatile memory, including by way of example semiconductor memory devices, such as EPROM, EEPROM, and flash memory devices; magnetic disks such as internal hard disks and removable disks; magneto-optical disks; and CD-ROM and DVD-ROM disks. The processor and the memory can be supplemented by, or incorporated in, ASICs (application-specific integrated circuits).

To provide for interaction with a user, the invention can be implemented on a computer system having a display device such as a CRT (cathode ray tube) or LCD (liquid crystal display) monitor for displaying information to the user and a keyboard and a pointing device such as a mouse or a trackball by which the user can provide input to the computer. Other kinds of devices can be used to provide for interaction with a user as well; for example, feedback provided to the user can be any form of sensory feedback, such as visual feedback, auditory feedback, or haptic feedback; and input from the user can be received in any form, including acoustic, speech, or haptic input.

The invention is now described in more detail by way of reference to the drawings.

Figures 1a and 1b depict one example of an implementation of an embodiment of the invention: a computer system 101 connectable to a computer system 115, each with program modules for performing the inventive method. Figure 1 a shows a computer

system 101 comprising a computer 102 having a CPU 105, a working storage 112 (memory), in which software applications are stored for being processed by CPU 105. Such a software application may be the inventive program 111, the eCSP. Computer system 101 further comprises input means 103 and output means 104 for interaction with a user, e.g. for starting programs and/or data input and/or output. Computer system 101 further comprises general input/output means 108, including a net connection 113, for sending and/or receiving data, e.g. for a net connection with one or more further computer systems 114, or for receiving and electronic bills. A plurality of computer systems like 101, particularly a computer system 115 as shown in fig. 1b, may be connected via the net connection 113 in the form of the network 114. In such a case, the network computers 114 can be used as further input/output means, including the use as further storage locations. For storing data, computer system 101 comprises a nonvolatile storage means 107. Figure 1b shows the computer system 115 connectable to the computer system 101 of figure 1a. Computer system 115 comprises a computer 116 having a CPU 121, a working storage 120 (memory), in which software applications are stored for being processed by CPU 121, general input/output means 122, including a net connection 123, for sending and/or receiving data and for a net connection to other computer systems, particularly to computer system 101 of figure 1a. Computer system 115 further comprises input means 117 and output means 118 for interaction with a user, e.g. for starting programs and/or data input and/or output, and a nonvolatile storage means 119.

Within the hardware example of figure 1a and 1b, the inventive eCSP 111 is installed on the computer system 101 and enables a second party to process an electronic invoice by means of computer system 115 when it is connected to computer system 101. This is now explained in more detail.

The eCSP 111 is executed on the computer system 101 and receives electronic bills via input/output means 108. These bills are provided to the eCSP by billers who want to make their bills available to their customers (the second party) by an independent service provider (the first party), who uses the eCSP. The eCSP 111 stores the incoming bills automatically in memory 112 (and/or storage means 107) in the form of one or more lines of one or more tables. In the example three bills are stored as three lines in table 109. Table 109 comprises a plurality of columns, e.g. invoice number, name of the customer, a date, products, price, address and others. The eCSP 111 then creates an Internet page in the form of structured document 125, e.g. an XML or HTML file, for each of the received invoices. The address of this file is incorporated into an HTTP link 110. The Internet page comprises one or more further data fields 106, which may be edited via an Internet browser from a connected computer system 115. The names of the further data fields 106 may be choosen according to the intended content. In the example two fields are specifically named: account number and cost centre. The properties of the further data fields 106 may be defined by means of a table. Typical properties are type, size, visibility, editing and default. Others may be edited on demand. The visibility property defines whether and how the field is shone on the screen. The editing property defines whether the editing is obligatory or mandatory. The default property defines whether and what default value is entered automatically into the respective field by the system. Additionally, predefinable rules may be applied to the further data fields. E.g., it's a further data field as the properties invisible, editing mandatory, then a default value has to be entered.

If the Internet page has been created, or in parallel, the eCSP automatically sends and e-mail or an SMS, containing the link 110, to the customer. The address of the customer is either contained in a specific data field of the electronic invoice or stored in the system during customising the eCSP.

The customer, as user of the computer system 115, receives the message containing the link 110 and opens it with a Web browser 124. After a mandatory login and/or authentication process the Web browser 124 of the customer shows the invoice as an Internet page 125 on screen 118. The Internet page 125 may contain all or part of the information contained in the electronic invoice as received by eCSP 111 and all or part of the further data fields 106 for editing. These details may be defined during the customisation of the eCSP. In the example, and account number has to be selected from a list and entered into the input field of the Internet page 125. After entering the data, the Web browser 124 sends the data via the net connection to the eCSP 111, and eCSP 111 adds the further data fields to the electronic invoice 109. This process may be repeated at predefinable number of times with a predefinable number of users (the case workers) of the computer system of the customer until all of the further data fields 106 are edited and until the electronic invoice is accepted by the customer. In order to define an electronic invoice as accepted, a still further data field may be added, which may only be edited by an authorised user of the customer. The exact sequence of such a process (workflow) may be defined during customisation of the eCSP. If the invoice is finally accepted, the eCSP creates an accounting voucher 126 from the invoice and sends it to the customer.

Fig. 2 shows an example of a process for processing an electronic document, e.g. an invoice, alternatively referred to

as bill. The process starts at step 201 when document is entered into the system. The eCSP performs an examination step 203, in which the received document is reviewed according to preset rules whether it fulfills predepined conditions. The eCSP also creates a structured document 202 including all or part of the data fields of the incomming document and further data fields. If the examination reveals a failure an escalation may be initiated accourding to decision steps 204 and 205. In case no escalation proceedure shall be initiated, which decision may be automatically performed by the eCSP according to predefined rules, the document is rejected in step 208 by sending a corresponding email to the sender of the document. This may be performed automatically by the eCSP according to predefined emails, depending on the kind of the failure. In case an escalation proceedure is initiated, an email comprising a link to a structured document 202, which may be specifically designed for the escalation situation, is automatically send to an scalation case worker (ECW) in step 206. The ECW may negotiate the case with the sender of the document and may amend the settings of the eCSP accordingly. Then, the ECW decides in step 207 whether the document is rejected according to step 208 or whether the document is again entered into the system. If the examination step 203 reveals no failure, a workflow is started in step 209.

The predefined workflow process sends automatically an email to a first case worker (CW1), said email comprising a link to a structured document 202a, which may be specifically designed for CW1. The CW1 applies the link and the structured document is opened and presented to him by his web browser. The CW1 edits in step 211 the further data fields presented to him and thereby adds data to the structured document 202a. The CW1 further may notify the workflow process whether the document has to be rejected or not. After closing the structured document 202a, the workflow notices in step 212, e.g. by

supervision of the status of the document 202a or the information contained in it, that the process step 211 has been completed. If in step 213 the document 202a is still ok, a second caseworker (CW2) is called in step 214. Otherwise the document is rejected by step 208. The predefined workflow process sends automatically an email to CW2, said email comprising a link to a structured document 202b, which may be specifically designed for CW2. The CW2 applies the link and the structured document is opened and presented to him by his web browser. The CW2 edits in step 215 the further data fields presented to him and thereby adds data to the structured document 202b. The CW2 further may notify the workflow process whether the document has to be rejected or not. After closing the structured document 202b, the workflow notices in step 216, e.g. by supervision of the status of the document 202b or the information contained in it, that the process step 215 has been completed. If in step 217 the document 202b is still ok, a controller is called in step 218. Otherwise the document is rejected by step 208. The predefined workflow process sends automatically an email to the controller, said email comprising a link to a structured document 202c, which may be specifically designed for the controller. The controller applies the link and the structured document is opened and presented to him by his web browser. The controller reviews in step 219 the document 202c and notifies the workflow process whether the document has to be rejected or not. After closing the structured document 202c, the workflow notices in step 220, e.g. by supervision of the status of the document 202c or the information contained in it, that the process step 215 has been completed. If in step 221 the document 202c is still ok, an adapted document (accounting voucher) is created from the accepted document and sent to the second party (customer). Otherwise, depending on the decision of the controller, the

document is rejected by step 208 or reentered into the system. The process ends in step 223.

Fig. 3 shows a further example of a process for processing an electronic document, e.g. an invoice, alternatively referred to as bill. The process starts at step 301 when document is entered into the system. The eCSP performs an examination step 303, in which the received document is reviewed according to preset rules whether it fulfills predepined conditions. The eCSP also creates a structured document 302 including all or part of the data fields of the incomming document and further data fields. If the examination reveals a failure an escalation may be initiated accourding to decision steps 304 and 305. In case no escalation proceedure shall be initiated, which decision may be automatically performed by the eCSP according to predefined rules, the document is rejected in step 308 by sending a corresponding email to the sender of the document. This may be performed automatically by the eCSP according to predefined emails, depending on the kind of the failure. In case an escalation proceedure is initiated, an email comprising a link to a structured document 302, which may be specifically designed for the escalation situation, is automatically send to an scalation case worker (ECW) in step 306. The ECW may negotiate the case with the sender of the document and may amend the settings of the eCSP accordingly. Then, the ECW decides in step 307 whether the document is rejected according to step 308 or whether the document is again entered into the system. If the examination step 303 reveals no failure, the eCSP stores default values into the further data fields contained the structured document 302 thus creating a structured document 302a. Subsequently, a workflow is started in step 310.

The predefined workflow process sends automatically an email to a first case worker (CW1), said email comprising a link to a

structured document 302b, which may be specifically designed for CW1 out of document 302a. The CW1 applies the link and the structured document is opened and presented to him by his web browser. The CW1 edits in step 312 the further data fields presented to him and thereby adds data to the structured document 302b or changes the default values or selects values from a presented list. The CW1 decides in step 314 whether a further action shall be performed by a further caseworker and if yes, CW1 sends a corresponding email including the link to the further caseworker, who then performs the action in step 313. The CW1 further decides in step 315 whether the document has to be rejected or not. In case yes, the document is rejected according to step 308. After closing the structured document 302b, the workflow notices in step 316, e.g. by supervision of the status of the document 302b or the information contained in it, that the process step 312 has been completed. If the document is not rejected, a second caseworker (CW2) is called in step 317.

The workflow process sends automatically an email to CW2, said email comprising a link to a structured document 302c, which may be specifically designed for CW1 out of document 302b or identical to it. The CW2 applies the link and the structured document is opened and presented to him by his web browser. The CW2 edits in step 318 the further data fields presented to him and thereby adds data to the structured document 302c or changes the default values or selects values from a presented list. The CW2 decides in step 320 whether a further action shall be performed by a still further caseworker and if yes, CW2 sends a corresponding email including the link to the still further caseworker, who then performs the action in step 319. The CW2 further decides in step 321 whether the document has to be rejected or not. In case yes, the document is rejected according to step 308. After closing the structured document 302c, the workflow notices in step 322, e.g. by supervision of

the status of the document 302c or the information contained in it, that the process step 318 has been completed. If the document is not rejected, a controller is called in step 323. The workflow sends automatically an email to the controller, said email comprising a link to a structured document 302d, which may be specifically designed for the controller. The controller applies the link and the structured document is opened and presented to him by his web browser. The controller reviews in step 324 the document 302d, adds eventually missing data and notifies the workflow process whether the document has to be rejected or not. After closing the structured document 302d, the workflow notices in step 325, e.g. by supervision of the status of the document 302d or the information contained in it, that the process step 324 has been completed. If in step 326 the document 302d is marked as acceptable, an adapted document (accounting voucher) is created from the accepted document and sent to the second party (customer). Otherwise, depending on the decision of the controller, the document is rejected by step 308 or reentered into the system or resent to CW1 or CW2. The process ends in step 328.

Fig. 4 shows an example of a further implementation of a workflow for the inventive document processing method. The workflow starts in a step 401, e.g. it is initiated by the eCSP who noticed an incoming document. A start user is selected from a document 402. This may be the incoming document, which may include a data field, in which the name of a start user is contained. The workflow sends automatically an email to the start user in step 403, said email comprising a link to a structured document, which may be specifically designed for the start user. The start user applies the link and the structured document is opened and presented to him by his web browser. The start user performs a specific action on the structured document in step 404. After completion of the action, the start

user may select an additional case worker from a user list 405 and pass to him the structured document by sending an email comprising the link as already pointed out above. The additional case worke then performs an action in step 406 and may select a further additional case worker from user list 405 for performing a further action on the structured document. This proceedure may be repeated as the case requires, indicated by step 407 in dashed lines. If all actions have been performed, the workflow ends in step 408.

Fig. 5 shows a example of a still further implementation of a workflow for the inventive document processing method. The workflow starts in a step 501, e.g. it is initiated by the eCSP who noticed an incoming document. A start user is selected from a document 502. This may be the incoming document, which may include a data field, in which the name of a start user is contained. The workflow sends automatically an email to the start user in step 403, said email comprising a link to a structured document, which may be specifically designed for the start user. The start user applies the link and the structured document is opened and presented to him by his web browser. The start user performs a specific action on the structured document in step 504. After completion of the action, the start user may select an additional case worker "user X" and store the address of user X in a document 506. The start user closes the structured document. The workflow checks in steps 505 and 507 whether a additional case work is selected, e.g. by checking document 506, and if yes, calls user X in step 508 by sending him an email as pointed out above. User performs the action in step 509. If no additional caseworker is selected, the workflow calls from step 507 then next case workers 1 and 2 in step 512, 511, respectively. This is an example of a workflow with working steps running parallel. The next case workers 1 and 2 perform their respective actions in steps 514,

513. The workflow waits in step 515 until the actions have all been performed and ends then in step 516.

The inventive method further comprisis in a further embodiment archiving the electronic bills according to the following principles:
Archiving should meet the requirements of applicable regulations (VAT). The biller receives an archive in form of a non eraseable storage means such as CD or DVD ROM or an other read only device, that contains all his business transactions (bills) with the eCSP. The customer may also receive an archive, in the same form as the biller, containing all his business transactions with the eCSP. The archive may comprise:
An Index, digitally signed by the provider running the eCSP, wherein the index contains invoice summaries of all the business transactions in the archive. The index may be digitally signed to have a proof of the archive content (Business Transactions cannot be removed) for every business transaction (invoice presented) and may comprise:
A business transaction report containing the invoice summary, a history of all business transaction events and hyperlinks to the original messages.
All messages exchanged, e. g. the digitally signed invoice as a structured message (XML IDOC or EDIFACT, etc.), the invoice as PDF File also digitally signed, etc.
Optionally, cryptographic mechanisms are applied, to avoid any changes of the content of the archive. The archive may be produced periodically, according to the requirements of the biller or customer. The archive can be delivered to the biller or the customer. The receiver can confirm readability of the received archive by sending an „archive accepted" message or by interactive confirmation of the acceptance. Business transactions may be removed from the eCSP after receiving all

necessary acceptance messages and after a configurable number of working days (typically 90).

The inventive method system as described solves requirements on EBPP system such as: easy integration of biller- and customer IT systems, consolidation of bills of different billers for one customer, allowance for multiple financial institutions for payment, access security and privacy of invoice details, compliance to national government VAT regulations, high scalability with respect to invoice volume, allowance for cross border EBPP, invoice review workflow. Minimum affort for IT systems on the customer side, because a customer needs only a computer system and a web browser.

Modifications and adaptations of the present invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. The foregoing description of an implementation of the invention has been presented for purposes of illustration and description. It is not exhaustive and does not limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from the practicing of the invention. For example, the described implementation includes software, but systems and methods consistent with the present invention may be implemented as a combination of hardware and software or in hardware alone. Additionally, although aspects of the present invention are described for being stored in memory, one skilled in the art will appreciate that these aspects can also be stored on other types of computer-readable media, such as secondary storage devices, for example, hard disks, floppy disks, or CD-ROM; the Internet or other propagation medium; or other forms of RAM or ROM. It is intended that the specification and examples be considered as exemplary only,

with a true scope and spirit of the invention being indicated by the following claims.

Computer programs based on the written description and flow charts of this invention are within the skill of an experienced developer.

What is claimed is:

1. A method for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by a first party to a second party, comprising the steps of:
said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

2. The method of claim 1, further comprising:
said first party providing means for enabeling said second party to enter information into the one or more further data fields.

3. The method of claim 1 or 2, further comprising:
said first party providing proposals for the information to the second party according to a predefinable list.

4. The method of one or more of claims 2 to 3, wherein the document is a bill.

5. The method of claim 4, further comprising:
said first party writing financial information into the one or more further data fields and adding the one or more further data fields to the electronic bill.

6. The method of one or more of claims 4 to 5, further comprising:
selecting the financial information from the group consisting of financial objects, accounting objects, bookkeeping objects.

7. The method of one or more of claims 1 to 6, further comprising:

writing a predefinable value into one or more of the further data fields.

8. The method of one or more of claims 1 to 7, wherein comprising:
the means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document comprise one or more structured documents.

9. The method of claim 8, wherein
the strucured document comprises data and/or tags and/or program code and whererin the structured document is accessible by the second party.

10. The method of claim 8 or 9,wherein
the or each strucutred document is a structured table or an XML-file or a HTML-file or a java server page.

11. The method of one or more of claims 9 to 10, further comprising:
said first party providing means for enabeling the second party to characterize the invoice as accepted or refused.

12. The method of one or more of claims 1 to 11 further comprising:
sending an accepted electronic invoice to the second party and/or to a payment service provider.

13. The method of one or more of claims 1 to 12, wherein
creating an accounts record from an accepted invoice and sending it to the second party.

14. The method of one or more of claims 1 to 13, further comprising:
two or more of the further data fields being structured hierarchical.

15. The method of one or more of claims 1 to 14, further comprising:
a property selected from the group consisting of displayable, non displayable, optionally editable, mandatory editable, is assigned to one or more of the further data fields.

16. The method of one or more of claims 1 to 15, further comprising:
said first party providing means for naming the one or more further data fields.

17. The method of one or more of claims 1 to 16, further comprising:
checking the authorization of a user of the second party.

18. The method of one or more of claims 1 to 17, further comprising:
making the invoice accessible to the second party by means of an intranet or the internet.

19. The method of one or more of claims 1 to 18, further comprising:
counting the processed bills providing an invoice for the processing of the bills to the second party.

20. The method of one or more of claims 1 to 19, further comprising:
if an electronic invoice is received from a third party, automatically starting a workflow for processing the bill.

21. The method of one or more of claims 1 to 20, further comprising:
sending an electronic notice, which includes a link to the invoice to an address contained in the workflow.

22. The method of one or more of claims 1 to 21, further comprising:
the workflow runnning according to a predefinable sequence.

23. The method of one or more of claims 1 to 22, further comprising:
automatically checking the authorization of a participent of the workflow.

24. The method of one or more of claims 1 to 23,
for use for an enterprise accounting system.

25. A computer system for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by a first party to a second party, comprising:
- memory having program instructions;
- input means for receiving and entering data;
- output means for sending and presenting data
- storage means for storing data;
- a processor responsive to the program instructions to:
said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

26. The computer system of claim 25, further comprising:
said first party providing means for enabeling said second party to enter information into the one or more further data fields.

27. The computer system of claim 25 or 26, further comprising:
said first party providing proposals for the information to the second party according to a predefinable list.

28. The computer system of one or more of claims 25 to 27, wherein
the document is a bill.

29. The computer system of claim 25 to 28, further comprising:
said first party writing financial information into the one or more further data fields and adding the one or more further data fields to the electronic bill.

30. The computer system of one or more of claims 25 to 28, further comprising:
selecting the financial information from the group consisting of financial objects, accounting objects, bookkeeping objects.

31. The computer system of one or more of claims 25 to 30, further comprising:
writing a predefinable value into one or more of the further data fields.

32. The computer system of one or more of claims 25 to 31, wherein comprising:
the means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document comprise one or more structured documents.

33. The computer system of claim 25 to 32, wherein
the strucured document comprises data and/or tags and/or program code and whererin the structured document is accessible by the second party.

34. The computer system of claim 25 to 33,wherein
the or each strucutred document is a structured table or an XML-file or a HTML-file or a java server page.

35. The computer system of one or more of claims 25 to 34, further comprising:
said first party providing means for enabeling the second party to characterize the invoice as accepted or refused.

36. The computer system of one or more of claims 25 to 35, further comprising:
sending an accepted electronic invoice to the second party and/or to a payment service provider.

37. The computer system of one or more of claims 25 to 36, wherein
creating an accounts record from an accepted invoice and sending it to the second party.

38. The computer system of one or more of claims 25 to 36, further comprising:
two or more of the further data fields being structured hierarchical.

39. The computer system of one or more of claims 25 to 38, further comprising:
a property selected from the group consisting of displayable, non displayable, optionally editable, mandatory editable, is assigned to one or more of the further data fields.

40. The computer system of one or more of claims 25 to 39, further comprising:
said first party providing means for naming the one or more further data fields.

41. The computer system of one or more of claims 25 to 40, further comprising:
checking the authorization of a user of the second party.

42. The computer system of one or more of claims 25 to 41, further comprising:
making the invoice accessible to the second party by means of an intranet or the internet.

43. The computer system of one or more of claims 25 to 42, further comprising:
counting the processed bills providing an invoice for the processing of the bills to the second party.

44. The computer system of one or more of claims 25 to 43, further comprising:
if an electronic invoice is received from a third party, automatically starting a workflow for processing the bill.

45. The computer system of one or more of claims 25 to 44, further comprising:
sending an electronic notice, which includes a link to the invoice to an address contained in the workflow.

46. The computer system of one or more of claims 25 to 45, further comprising:
the workflow running according to a predefinable sequence.

47. The computer system of one or more of claims 25 to 46, further comprising:
automatically checking the authorization of a participent of the workflow.

48. The computer system of one or more of claims 25 to 47, for use for an enterprise accounting system.

49. A computer readable medium comprising instructions for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by

a first party to a second party, comprising instructions for:
said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

50. The computer readable medium of claim 49, further comprising:
said first party providing means for enabeling said second party to enter information into the one or more further data fields.

51. The computer readable medium of claim 49 or 50, further comprising:
said first party providing proposals for the information to the second party according to a predefinable list.

52. The computer readable medium of one or more of claims 49 to 51, wherein
the document is a bill.

53. The computer readable medium of claim 49 to 52, further comprising:
said first party writing financial information into the one or more further data fields and adding the one or more further data fields to the electronic bill.

54. The computer readable medium of one or more of claims 49 to 53, further comprising:
selecting the financial information from the group consisting of financial objects, accounting objects, bookkeeping objects.

55. The computer readable medium of one or more of claims 49 or 54 further comprising:

writing a predefinable value into one or more of the further data fields.

56. The computer readable medium of one or more of claims 49 to 55, wherein comprising:
the means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document comprise one or more structured documents.

57. The computer readable medium of claim 49 to 56, wherein the strucured document comprises data and/or tags and/or program code and whererin the structured document is accessible by the second party.

58. The computer readable medium of claim 49 to 57,wherein the or each strucutred document is a structured table or an XML-file or a HTML-file or a java server page.

59. The computer readable medium of one or more of claims 49 to 58, further comprising:
said first party providing means for enabeling the second party to characterize the invoice as accepted or refused.

60. The computer readable medium of one or more of claims 49 to 59, further comprising:
sending an accepted electronic invoice to the second party and/or to a payment service provider.

61. The computer readable medium of one or more of claims 49 to 60, wherein
creating an accounts record from an accepted invoice and sending it to the second party.

62. The computer readable medium of one or more of claims 49 to 60, further comprising:

two or more of the further data fields being structured hierarchical.

63. The computer readable medium of one or more of claims 49 to 62, further comprising:
a property selected from the group consisting of displayable, non displayable, optionally editable, mandatory editable, is assigned to one or more of the further data fields.

64. The computer readable medium of one or more of claims 49 to 63, further comprising:
said first party providing means for naming the one or more further data fields.

65. The computer readable medium of one or more of claims 49 to 64, further comprising:
checking the authorization of a user of the second party.

66. The computer readable medium of one or more of claims 49 to 65, further comprising:
making the invoice accessible to the second party by means of an intranet or the internet.

67. The computer readable medium of one or more of claims 49 to 66, further comprising:
counting the processed bills providing an invoice for the processing of the bills to the second party.

68. The computer readable medium of one or more of claims 49 to 67, further comprising:
if an electronic invoice is received from a third party, automatically starting a workflow for processing the bill.

69. The computer readable medium of one or more of claims 49 to 68, further comprising:

sending an electronic notice, which includes a link to the invoice to an address contained in the workflow.

70. The computer readable medium of one or more of claims 49 to 69, further comprising:
the workflow runnning according to a predefinable sequence.

71. The computer readable medium of one or more of claims 49 to 70, further comprising:
automatically checking the authorization of a participent of the workflow.

72. The computer readable medium of one or more of claims 49 to 71,
for use for an enterprise accounting system.

73. A computer data signal embodied in a carrier wave comprising:
code for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by a first party to a second party, said code comprising instructions for:
said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

Abstract

Method and Software Application for Verifying and Accounting electronic Documents

The Invention relates to a method for processing electronic documents, wherein the document comprises a plurality of data fields containing document information and wherein the document is made accessible by a first party to a second party, comprising the steps of:
said first party providing means for enabeling said second party to add one or more further data fields to one or more of the data fields of the document.

(Fig. 1)

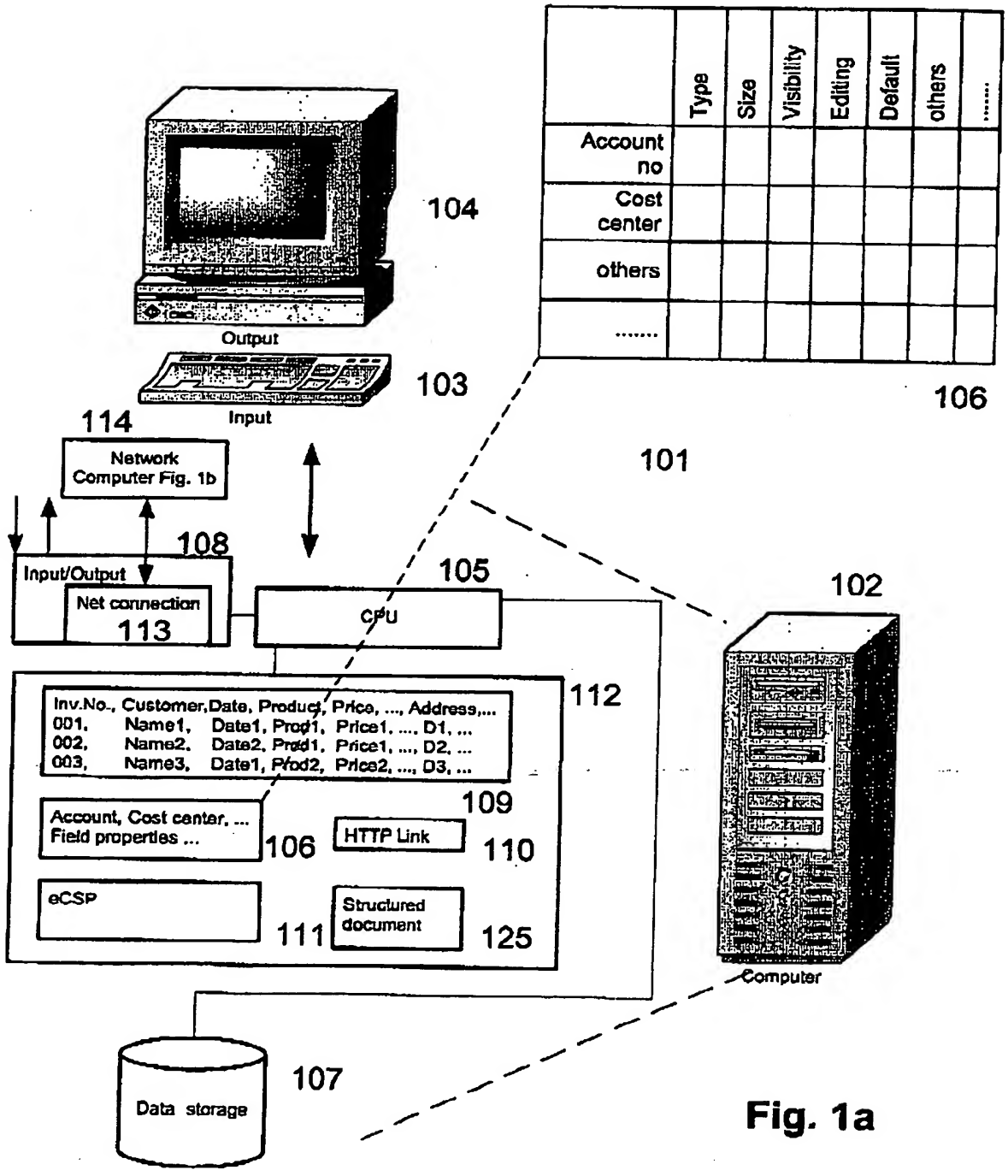
Type
Size
Visibility
Editing
Default
others
.....
Account no
Cost center
others
.....
106
104
Output
103
Input
114
Network Computer Fig. 1b
101
108
Input/Output
Net connection
113
105
CPU
102
112
Inv.No., Customer, Date, Product, Price, ..., Address,...
001, Name1, Date1, Prod1, Price1, ..., D1, ...
002, Name2, Date2, Prod1, Price1, ..., D2, ...
003, Name3, Date1, Prod2, Price2, ..., D3, ...
109
Account, Cost center, ...
Field properties ...
106
HTTP Link
110
eCSP
111
Structured document
125
Computer
107
Data storage

Fig. 1a

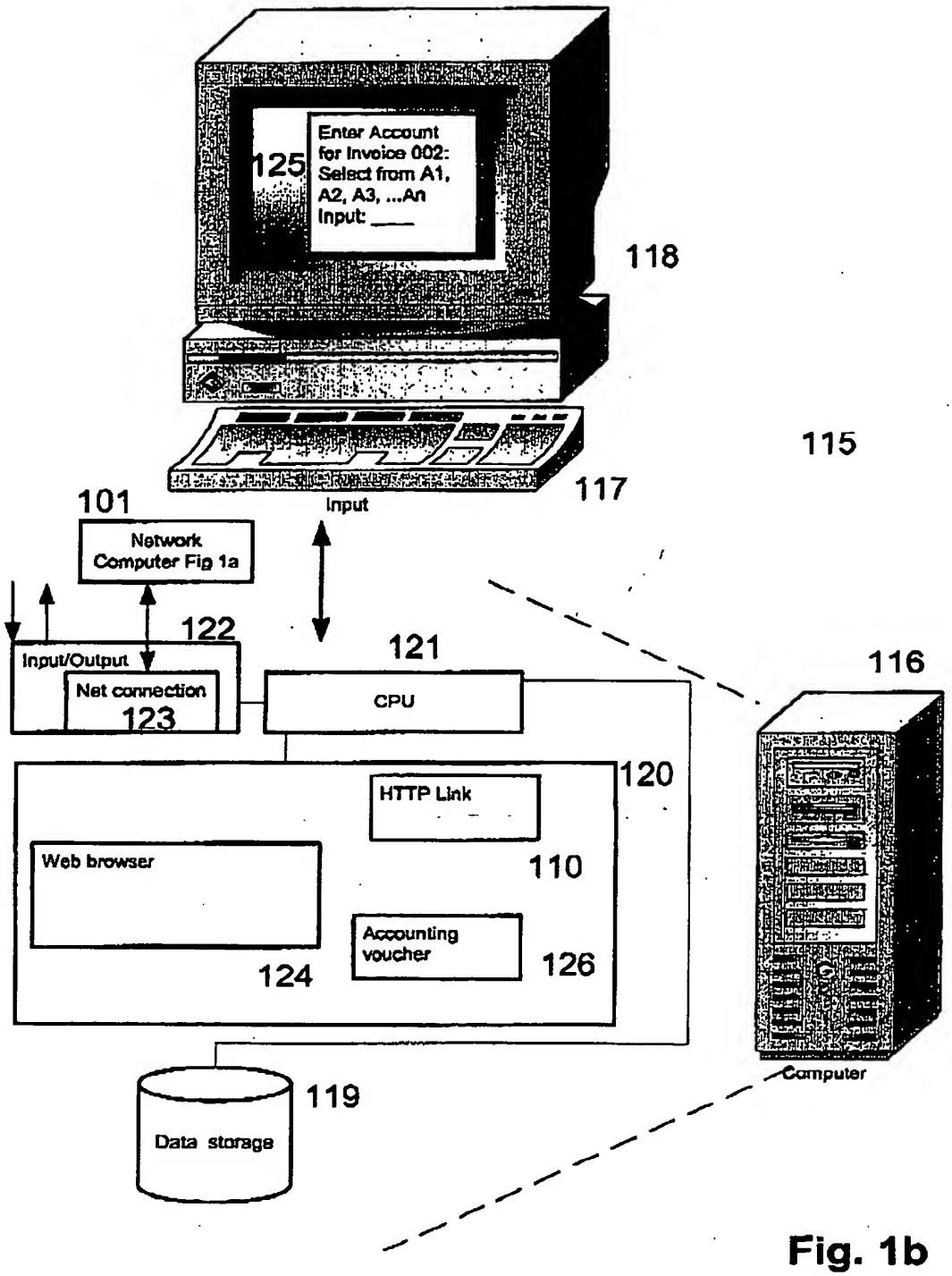
Enter Account for Invoice 002: Select from A1, A2, A3, ...An Input: ____
125
118
115
117
Input
101
Network Computer Fig 1a
122
Input/Output
Net connection
123
121
CPU
116
120
HTTP Link
Web browser
110
Accounting voucher
126
124
Computer
119
Data storage

Fig. 1b

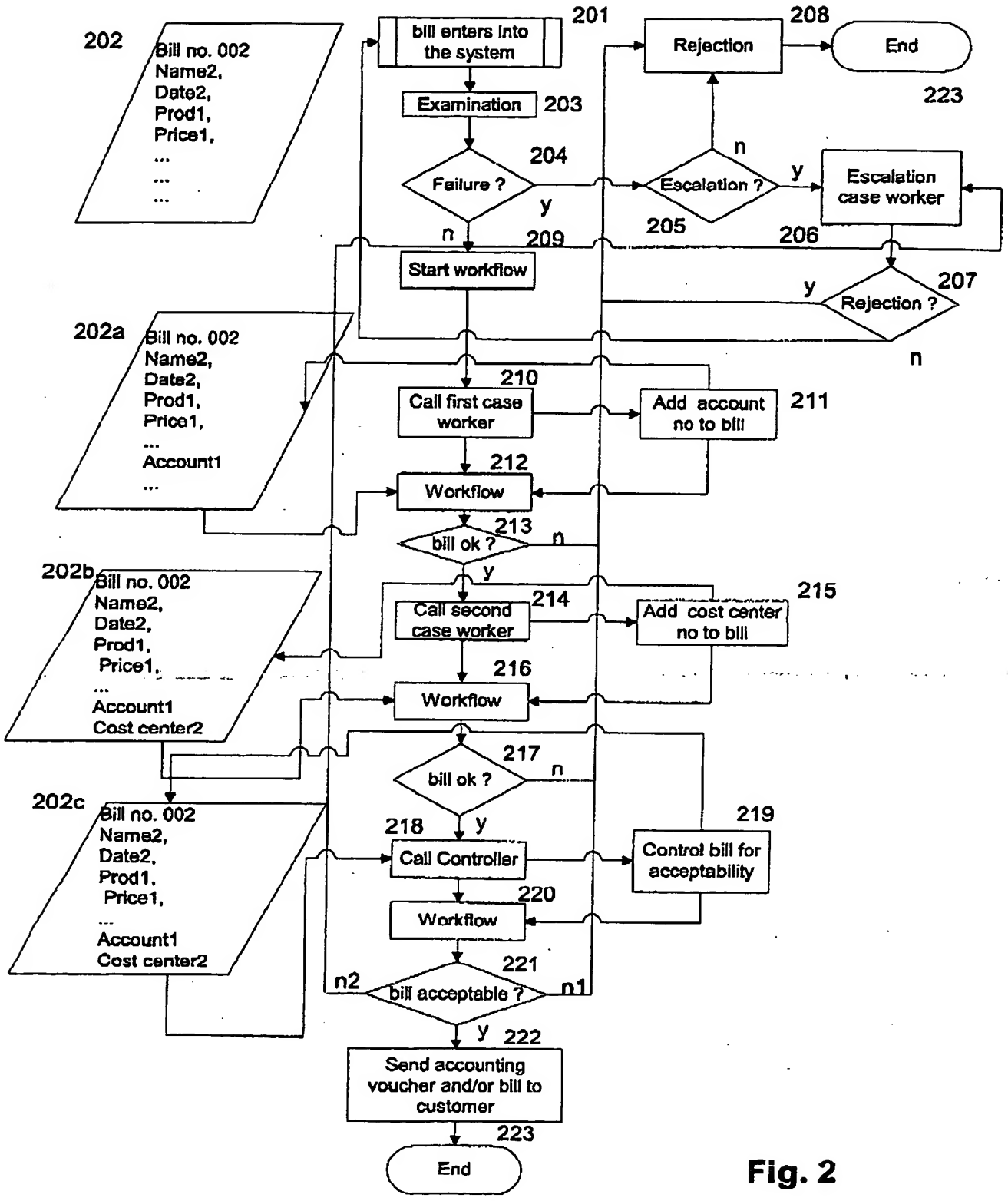
202
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
...
...
bill enters into the system
201
Examination
203
Failure ?
204
y
n
Start workflow
209
Rejection
208
End
223
Escalation ?
n
y
205
Escalation case worker
206
Rejection ?
207
y
n
202a
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account1
...
Call first case worker
210
Add account no to bill
211
Workflow
212
bill ok ?
213
n
y
202b
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account1
Cost center2
Call second case worker
214
Add cost center no to bill
215
Workflow
216
bill ok ?
217
n
y
202c
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account1
Cost center2
218
Call Controller
Control bill for acceptability
219
Workflow
220
bill acceptable ?
221
n2
n1
y
Send accounting voucher and/or bill to customer
222
223
End

Fig. 2

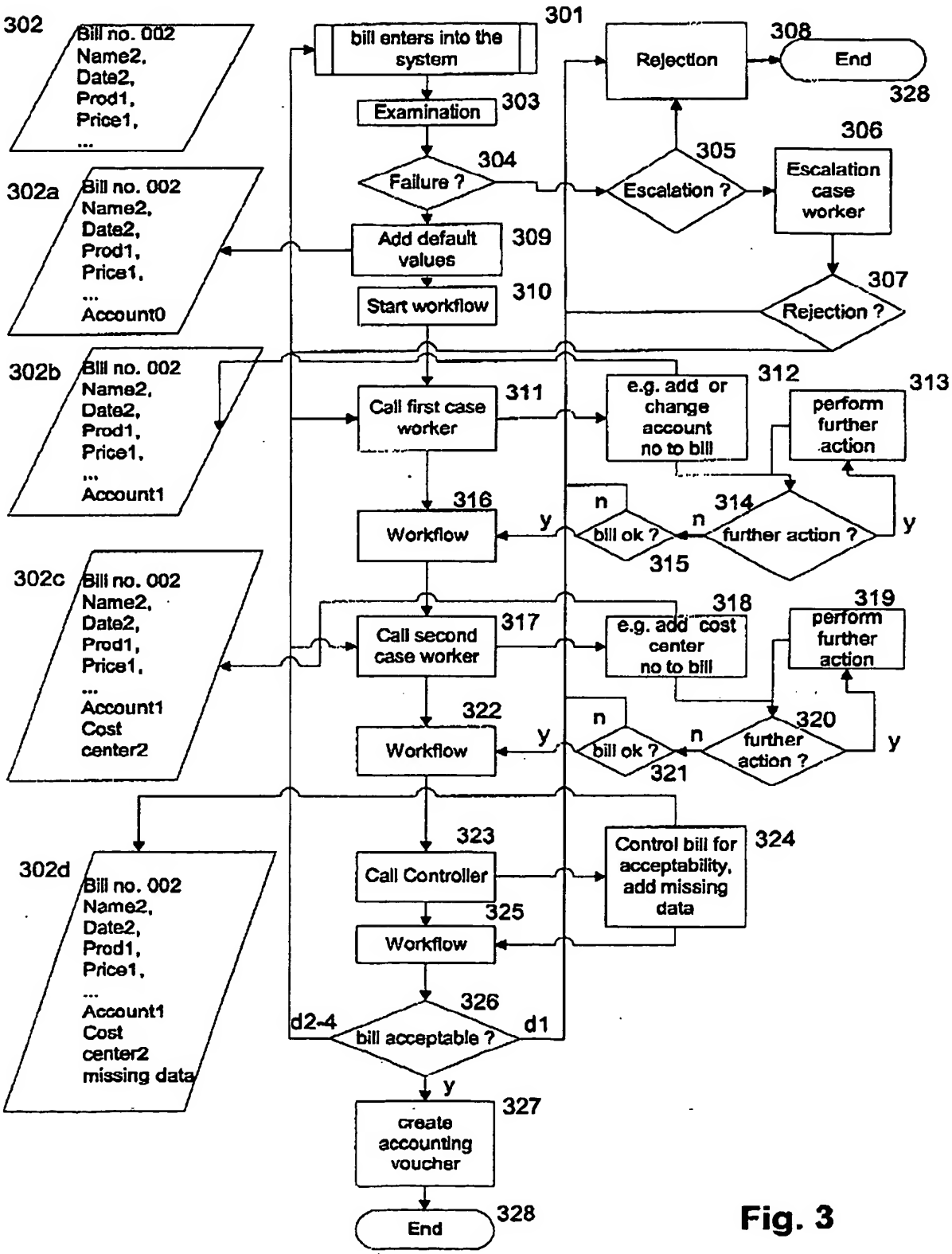
302
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
301
bill enters into the system
Examination
303
304
Failure ?
302a
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account0
Add default values
309
Start workflow
310
302b
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account1
Call first case worker
311
Workflow
316
302c
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account1
Cost center2
Call second case worker
317
Workflow
322
302d
Bill no. 002
Name2,
Date2,
Prod1,
Price1,
...
Account1
Cost center2
missing data
323
Call Controller
325
Workflow
326
d2-4
bill acceptable ?
d1
y
327
create accounting voucher
End
328
Rejection
308
End
328
305
Escalation ?
306
Escalation case worker
307
Rejection ?
312
e.g. add or change account no to bill
313
perform further action
n
y
bill ok ?
315
314
n
further action ?
y
318
e.g. add cost center no to bill
319
perform further action
n
y
bill ok ?
321
320
n
further action ?
y
324
Control bill for acceptability, add missing data

Fig. 3

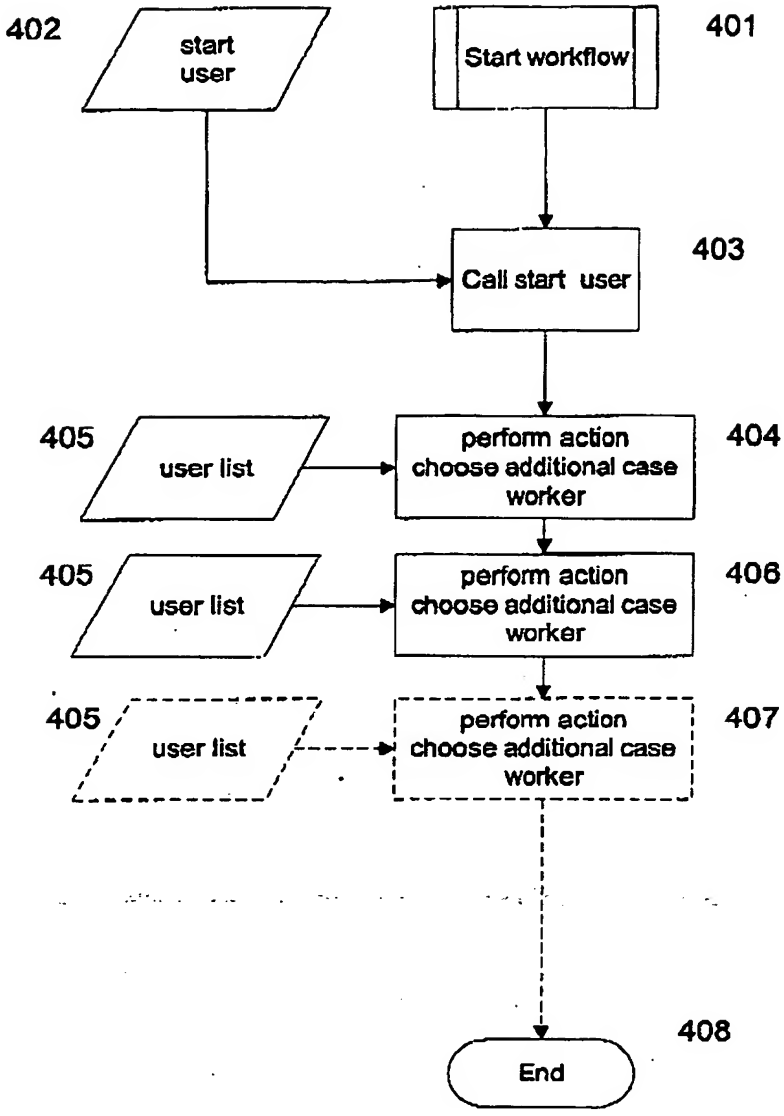
402
start user
Start workflow
401
Call start user
403
405
user list
perform action choose additional case worker
404
405
user list
perform action choose additional case worker
406
405
user list
perform action choose additional case worker
407
End
408

Fig. 4

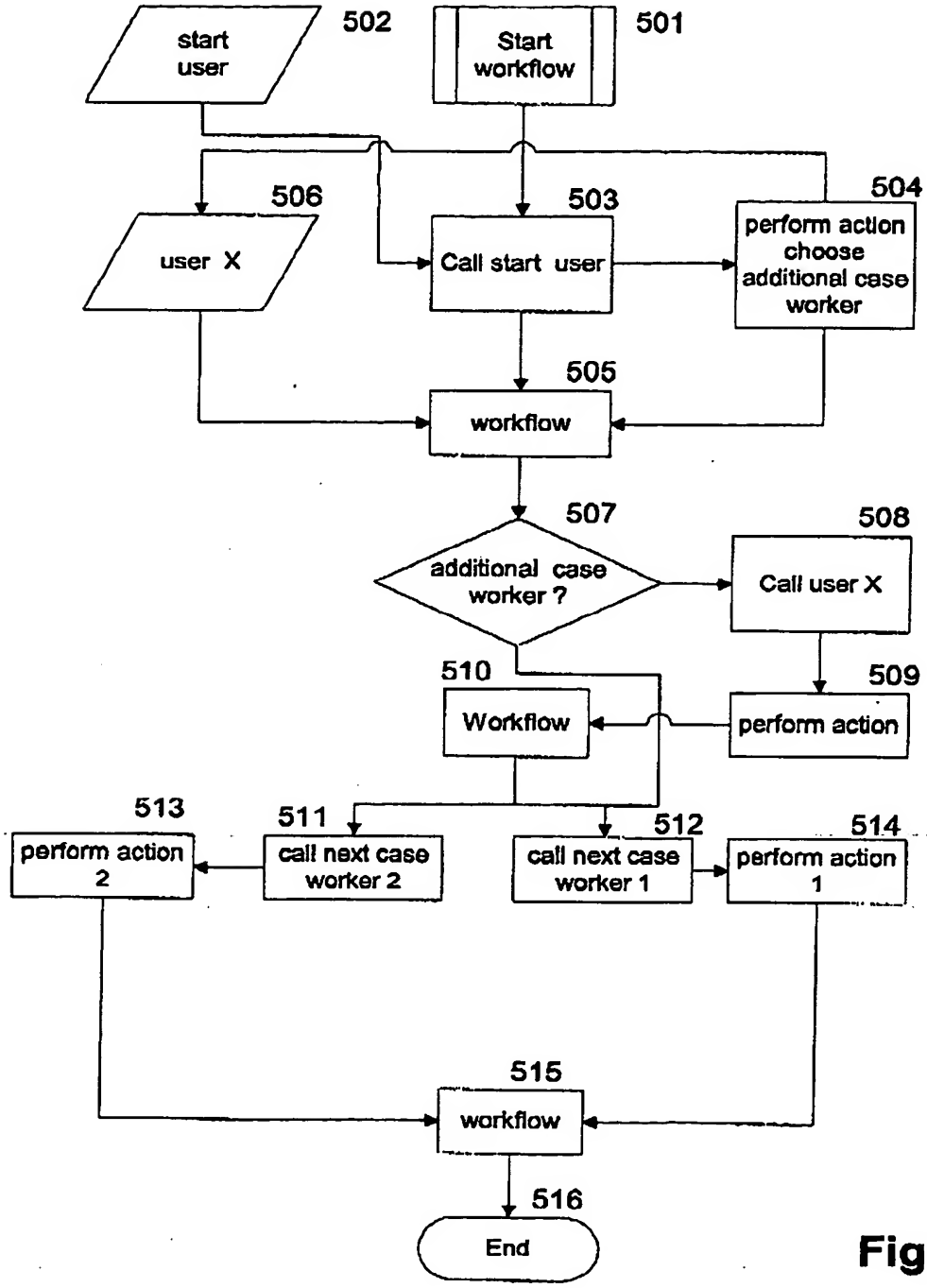
start user
502
Start workflow
501
506
user X
503
Call start user
504
perform action choose additional case worker
505
workflow
507
additional case worker ?
508
Call user X
509
perform action
510
Workflow
513
perform action 2
511
call next case worker 2
512
call next case worker 1
514
perform action 1
515
workflow
516
End

Fig. 5

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